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Supreme Court of the United States

J.E.M. AG SUPPLY, INC. (D/B/A FARM, ADVANTAGE, INC.), FARM ADVANTAGE, INC., LARRY BENZ, MERLE PRUETT (D/B/A SIOUXLAND SEEDS, INC.), KEVIN WOLFSWINKEL, TIM KAMSTRA, and TOM EISCHEN SEED & CHEMICALS,

Petitioners,

v.

PIONEER HI-BRED INTERNATIONAL, INC.,

Respondent.

On Writ Of Certiorari To The United States Court Of Appeals For The Federal Circuit

BRIEF AMICUS CURIAE OF DELTA AND PINE LAND COMPANY IN SUPPORT OF RESPONDENT

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QUESTION PRESENTED

Are patents issued under 35 U.S.C. § 101 granting the right to exclude others from sexually reproducing plants or plant varieties, or from selling or using plants or plant varieties reproduced by means of sexual reproduction (by seed), invalid because the Plant Variety Protection Act of 1970, 7 U.S.C. § 2321, *et seq.*, and the Plant Patent Act of 1930, 35 U.S.C. §§ 161-64, are the exclusive means of obtaining a federal statutory right to exclude others from reproducing, selling, or using plants or plant varieties?

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INTEREST OF AMICUS CURIAE*

Delta and Pine Land Company is a breeder, developer and marketer of cottonseed and soybeans, which are sold to farmers for planting throughout the United States and in many other countries where these crops are grown. Delta and Pine Land Company is the holder of a number of certificates of plant variety protection and the assignee of numerous patents in cotton and soybean cultivars. Delta and Pine Land Company is also co-assignee (with the United States Department of Agriculture) of U.S. Pat. No. 5,723,765, which covers a method for control of plant gene expression.

If utility patents claiming plant-related subject matter are invalidated, Delta and Pine Land Company, along with other participants in the ongoing biotechnology revolution, would incur substantial losses of investment in research and development and other resources. Its commercial and research relationships with collaborators in agricultural biotechnology ventures around the world would be seriously and adversely affected. More broadly, innovation in plant technology in the United States would be stymied and placed at a great disadvantage in comparison to Europe and other regions of the world where inventions embodied in plants may be patented.

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* No part of this brief was authored by counsel for any party to this case, and no person or entity other than Delta and Pine Land Company made a monetary contribution to the preparation or submission of this brief.

STATEMENT OF THE CASE

This case concerns whether a multitude of United States utility patents issued during the last sixteen years will be invalidated simply because the patented inventions relate to or are embodied in plant organisms. Petitioner contends that because certain intellectual property rights in asexually reproducing plants may be protected under the Plant Patent Act ("PPA"), and because novel varieties of sexually reproducing plants may be protected under the Plant Variety Protection Act of 1970 ("PVPA"), inventions pertaining to plants are unpatentable subject matter for purposes of utility patents under 35 U.S.C. § 101. Both the district court and the Federal Circuit held that there is no irreconcilable conflict among the three intellectual property regimes which would preclude the issuance of utility patents for inventions embodied in plants, so long as the plant invention meets the statutory criteria for patentability under 35 U.S.C. §§ 101-157. *Pioneer Hi-Bred International, Inc. v. J.E.M. Ag Supply, Inc.*, 200 F.3d 1374, 1376 (2000), *cert. granted*, ___ U.S. ___, 121 S.Ct. 1077 (2001). On February 20, 2001, this Court granted certiorari to review the Federal Circuit decision.

AUTHORITY TO FILE

Both parties have given permission for the filing of this amicus brief. Copies of the permission letters are attached to the proof of service submitted to the Clerk.

SUMMARY OF THE ARGUMENT[1]

1. Petitioners contend that sexually reproducing "plants are not patentable subject matter within the scope of 35 U.S.C. § 101," because intellectual property protection for such plants supposedly "is exclusively obtainable under the provisions of the Plant Variety Protection Act of 1970 (PVPA), 7 U.S.C. § 2313, *et seq.*" (Pet. Br. 6, 7.) However, the PVPA does not embrace all forms of innovation pertaining to sexually reproduced plants. Rather, it affords an extremely narrow scope of protection for novel "plant varieties," a legal grouping of plants based on measurements of phenotypic differences. Many inventions, which meet all the requirements of patentability under 35 U.S.C. § 101, *i.e.*, originality, novelty, nonobviousness, and utility, are embodied in plants not constituting "plant varieties" under the PVPA. Under Petitioners' theory, even though such inventions could not be protected under the PVPA, they could not be the subject of utility patents either. This erroneous position would deprive a broad class of inventions of any intellectual property protection, and would constitute a major disincentive to innovation in biotechnology. This illogical outcome advocated by Petitioners has been rejected in foreign patent systems, even where there is an express legal prohibition against dual coverage of the same invention under patent and plant breeders' rights laws.

[1] To avoid duplication of arguments likely to be made by the Respondent, in this brief, Delta and Pine Land Company addresses a limited range of issues relevant to the Court's consideration of this case.

2. The economic and social effects of plant utility patents complained of by Petitioners and the *amici curiae* who support them do not support the invalidation of such patents. Economic analyses of the introduction of patented seed products to United States agriculture demonstrate that farmers have received the greatest economic benefits of all economic participants. Finally, utility patents for inventions embodied in plants do not adversely affect genetic diversity in the United States.

ARGUMENT

I. WITHDRAWAL OF UTILITY PATENT PROTECTION FOR PLANT SUBJECT MATTER WOULD LEAVE UNPROTECTIBLE A VAST FIELD OF PLANT INNOVATION THAT CANNOT BE COVERED BY THE PPA OR THE PVPA AND WOULD BE INCONSISTENT WITH CONGRESSIONAL INTELLUCTUAL PROPERTY POLICY

The suggestion that all plant subject matter is ineligible for utility patents, simply because the PVPA affords a form of protection to novel "varieties" of sexually reproduced plants, betrays a misunderstanding of the narrow concept of a plant "variety" embodied in the PVPA. The experience of patent protection in Europe demonstrates that even if Congress had forbidden simultaneous protection of plant varieties by both plant variety protection certificates and utility patents, there would remain a vast range of plant-related innovation which could only be protected by utility patents.

As Delta and Pine Land Company noted in testimony submitted to Congress in 1970 in support of the original enactment of the PVPA, "[i]n designing this bill, the authors have thoroughly studied the systems of other countries." *Plant Variety Protection: Hearing Before the Subcomm. on Departmental Operations of the Committee on Agriculture of the House of Representatives*, 91st Cong. 59-60 (1970) (statement of Delta & Pine Land Co.). Indeed, the PVPA was enacted in light of the fact that, "[t]he governments of several European countries, in particular, West Germany, Holland, Austria, Denmark, England and France, ha[d] already seen the need for and ha[d] made available in their respective countries a form of plant variety protection to developers of sexually reproduced plants." *Plant Variety Protection Act: Hearing Before the Subcomm. on Agricultural Research and General Legislation of the Committee on Agriculture and Forestry of the Senate*, 91st Cong., 2d Sess., at 68 (1970) (statement of Richard W. McKenna, Senior Vice President, Ferry-Morse Seed Co.). Most of these European countries were signatories to the 1961 Act of the International Convention for the Protection of New Varieties of Plants (UPOV Convention), which established a system of plant variety protection, which the U.S. Department of Agriculture characterized as "similar" to the PVPA. *Id.* at 52.

The United States never acceded to the 1961 UPOV Convention, and in enacting the PVPA, "priority was given in certain respects to domestic pressures (rationality of the legislative order, needs and desires of the parties concerned, traditions, etc.), rather than to strict conformity with the UPOV Convention." *See* International Union for the Protection of New Varieties of Plants,

The History of Plant Variety Protection, in THE FIRST TWENTY-FIVE YEARS OF THE INTERNATIONAL CONVENTION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS 53, 91 (1987). One such non-conformity in the PVPA was that Congress did not enact any provision as a counterpart to Art. 2(1) of the UPOV Convention, which prohibited "double protection" of plant varieties:

> Each member State of the Union may recognize the right of the breeder provided for in this Convention by the grant either of a special title of protection or of a patent. Nevertheless, a member State of the Union whose national law admits of protection under both these forms may provide only one of them for one and the same botanical genus or species.

UPOV Convention, 33 U.S.T. 2703, 815 U.N.T.S. 89.

In an effort to obtain the accession of a greater number of states, the UPOV Convention was revised in 1978. The United States signed, but did not ratify, this version of the convention. Among other changes made in the 1978 UPOV Convention, "an exceptional rule allowing protection under two forms was introduced in Art. 37." Joseph Strauss, *AIPPI and the Protection of Inventions in Plants – Past Developments, Future Perspectives*, 20 INT'L REV. OF INDUS. PROP. & COPYRIGHT L. 600, 611 (1989).[2] "This

[2] Art. 37(1) of the 1978 UPOV Convention provided in pertinent part that "any State which, prior to the end of the period during which this Act is open for signature, provides for protection under the different forms referred to in for one and the same genus or species, may continue to do so." Unlike many other nations, the United States had provided patent protection to plants pursuant to the PPA since 1930. Moreover, "before the end of the open signature period referred to in Art. 37(1), on October 21, 1979, the PTO's practice of not granting utility patents on living matter had also been reversed by an intermediate appellate court." Reid G. Adler, *Can Patents Coexist with Breeders' Rights? Developments in U.S. and International Biotechnology Law*, 17 INT'L REV. OF INDUS. PROP. & COPYRIGHT L. 195, 212 (1986). "[B]ecause of the meaning of 'patent,' . . . the U.S. can thus fairly be said to have provided protection by patents as contemplated by the drafters of UPOV." *Id.* For this reason, commentators have concluded, "the issuance of a plant utility patent d[id] not violate Art. 2(1). *Id.*

rule eventually led to a situation in which the United States of America is able to grant for plant varieties, plant patents and plant variety certificates, as well as utility patents." *Id.*

Although the United States never signed the 1961 UPOV Convention, a number of European countries did sign or accede to it.[3] Taking account of this different situation in Europe, in Article 2(b) of the 1963 Strasbourg Convention on the Unification of Certain Points of Substantive Law on Patents for Invention, the member states of the Council of Europe left the issue of "dual protection" up to the individual states, by agreeing that "[t]he Contracting States shall not be bound to provide for the grant of patents in respect of . . . plant or animal varieties. . . . "[4] Ten years later, however, the parties to the

[3] A list of UPOV member states, together with the dates of their accession to the UPOV Convention, is available at <http://www.upov.int/eng/ratif/pdf/ratifmem.pdf>.

[4] Convention on the Unification of Certain Points of Substantive Law on Patents for Invention, opened for signature Nov. 27, 1963, 1249 U.N.T.S. 369. The English text of the Strasbourg Convention is also available at the Council of Europe web site, <http://book.coe.fr/conv/en/ets/47-en.htm>.

European Patent Convention (EPC) eliminated the option of "dual protection" in member states by adopting Article 53(b), which provides, in pertinent part, that "European patents shall not be granted in respect of . . . plant or animal varieties. . . . "[5]

When the UPOV Convention was revised again in 1991, at the initiative of the vast majority of participants in the diplomatic conference, Art. 2(1) and its prohibition on dual coverage were removed.[6] However, Art. 53(b) of the EPC has not been revised to reflect the elimination of

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[5] This instrument, known as the European Patent Convention, was signed into existence in Munich as the Convention on the Grant of European Patents, Oct. 5, 1973, 1065 U.N.T.S. 255, 13 I.L.M. 270.

[6] *See* UPOV, RECORDS OF THE DIPLOMATIC CONFERENCE FOR THE REVISION OF THE INTERNATIONAL CONVENTION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS (1991) at 212-218. The Danish UPOV delegation to the revision conference, which proposed retaining a modified ban on dual protection, conceded that, the "position in favor of an exclusive protection system for plant varieties did not exclude . . . – and had never excluded, not even under the present Convention – the possibility of another form of protection applying to a plant variety, for example, as the result of the presence of a patented gene. The authorities had never seen any obstacle to a combination of the two forms of protection." *Id.* Despite this concession, the Danish delegation suggested that a ban on dual protection should be the norm of the convention, but that member states should be allowed to derogate from it if they so wished. *Id.* The great majority of delegations, however, including the United States delegation (*id.* at 215), opposed the Danish position. *Id.* at 213-18. Accordingly, former Art. 2(1), with its prohibition of "dual protection" for plant varieties, was removed from the convention, leaving the text of the 1991 UPOV Convention silent on the matter.

the ban on dual protection from the 1991 UPOV Convention. Consequently, the applicable legislation in EPC member states provides expressly what Petitioners contend the United States Congress intended but failed to mention in the PVPA. Even in Europe, however, where plant varieties are prohibited to be patented, the result advocated here by Petitioners has been rejected.

Whether the European Patent Office could issue utility patents as to inventions embodied in sexually reproducing plants was a topic of discussion and administrative litigation in the 1980s, which continued into the late 1990s. Much of the discussion focused on the narrow, legal concept of a "plant variety" under Art. 53(b) of the EPC.[7] As in the United States, European plant variety protection legislation is based on the concept of a "plant variety" found in the UPOV Convention.[8]

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[7] *See, e.g.*, Rainer Moufang, *Protection for Plant Breeding and Plant Varieties – A Frontier of Patent Law*, 23 INT'L REV. OF INDUS. PROP. & COPYRIGHT L. 328, 335-343 (1992) (arguing in favor of patentability of plant inventions); Andrew Christie, *Patents for Plant Innovation*, 11 EUR. INTELL. PROP. REV. 394, 407 (1989) ("As a matter of general principle, patent protection is available for a wide range of plant innovation").

[8] *See, e.g.*, Art. 5(2) European Council Regulation (EC) No. 2100/94 of 27 July 1994 on European Community Plant Variety Rights, available at <http://www.cpvo.fr/en/Lex/EN394R2100.pdf> ("For the purpose of this Regulation, 'variety' shall be taken to mean a plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of a plant variety right are fully met, can be: [1] defined by the expression of the characteristics that results from a given genotype or combination of genotypes, [2] distinguished from any other plant grouping by the expression of at least one of the said

Therefore, what constitutes a protectible plant "variety" is determined with reference to sets of phenotypic criteria, which were established, not by universally valid scientific principles, but by legal standards aimed at uniform application throughout UPOV Convention member states:

> Before the development of the UPOV system, many countries had their own regulations regarding the examination of varieties. The technical criteria for the grant of rights differed from one country to another and even the variety concept was not seen in the same light in all countries. The technical standards and testing procedures depended largely on the expertise of the official concerned. This lack of harmonization caused problems, especially when a breeder sought protection for his variety in several countries. A variety which had been considered distinct, uniform and stable in one country might be rejected in another or vice versa. It was realized that harmonization was urgently required and this responsibility was taken on by UPOV, as a result of the adoption of the [UPOV Convention] in 1961.[9]

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characteristics, and [3] considered as a unit with regard to its suitability for being propagated unchanged"). The same concept is codified in the PVPA at 7 U.S.C. § 2401(a)(9) and in the regulations of the United States Plant Variety Protection Office. *See, e.g.*, 7 C.F.R. § 97.1 ("Certificates of protection are issued by the Plant Variety Protection Office for new, distinct, uniform, and stable varieties of sexually reproduced or tuber propagated plants").

[9] *See* UPOV, *Introduction*, <http://www.upov.int/tg-rom/introd-e.htm> (accessed June 4, 2001).

In 1983, the EPO's Technical Board of Appeal considered claims to plant "propagating material," which had been chemically treated to confer herbicide resistance. *No. T49/83 CIBA GEIGY/Propagating Material*, 1984 O.J. Eur. Pat. Off. 112 (1983). The Technical Board concluded that the claimed invention "does not lie within the sphere of plant breeding, which is concerned with the genetic modification of plants." For this reason, the Technical Board said, chemically treating seeds did not create "plant varieties" within the meaning of Art. 53(b) of the EPC.

In *No. T320/87 Hybrid Plants/Lubrizol*, 1990 O.J. Eur. Pat. Off. 71 (1988), the Technical Board held that a novel combination of traditional plant breeding techniques produced plants and seeds not constituting a "plant variety," and thus the techniques were eligible for process patent protection. Moreover, the Technical Board allowed "product-by-process" claims to the hybrid plants and seeds resulting from the techniques. Due to the heterozygous genetics of the hybrids plants, they would not "breed true," and thus lacked the genetic "stability" to be classified as a "variety."

In *T356/94 – Plant Genetic Systems/Glutamine Synthetase Inhibitors*, 1995 Eur. Pat. Off. Rep. 357 (1995), however, the Technical Board construed Art. 53(b) to forbid patent claims that include plant varieties within their broad scope. In response to this decision, "the EPO was obliged to suspend its previous practice of granting claims to genetically modified plants." Tim Roberts, *EPO: Patents – Patentability of Plants*, 22 Eur. Intell. Prop. Rev. N49 (2000). The Swiss biotechnology company Novartis mounted a challenge to the policy announced in *Plant*

Genetic Systems, the outcome of which was a December 20, 1999 decision by the Enlarged Board of Appeals of the European Patent Office – the highest authority within the EPC system. *Id.*

In *No. G 1/98 – Transgenic Plant/Novartis II*, 3/2000 O.J. EUR. PAT. OFF. 111, 2000 EUR. PAT. OFF. REP. 303 (Dec. 20, 1999), the Enlarged Board agreed with Novartis and rejected the holding in *Plant Genetic Systems*. The Enlarged Board held that the extent of the EPC Art. 53(b) exclusion for patents was coextensive with the availability of plant variety rights under the UPOV Convention. Therefore, "inventions ineligible for protection under the plant breeders' rights system were intended to be patentable under the EPC provided they fulfilled the other requirements of patentability." The board noted that the UPOV Convention defines "variety," in part, as a plant grouping delineated by the expression of characteristics that result from a given genotype. Since a claim to a transgenic plant does not necessarily identify those characteristics required to assess the homogeneity and stability of varieties within a given species, the board reasoned, the claimed transgenic plant does not define a single variety.[10]

The Enlarged Board summarized its holding as follows:

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[10] The result in *Novartis* is consistent with the European Union's Directive 98/44/EC on the Legal Protection of Biotechnological Inventions, available at <http://europa.eu.int/eur-lex/en/lif/dat/1998/en___398L0044.html>, which came into force on July 30, 1998.

> **[A]ccording to Article 53(b) EPC, a patent is "in respect of varieties" and shall not be granted if the claimed subject-matter is directed to plant varieties. In the absence of the identification of a specific plant variety in a product claim, the subject-matter of the claimed invention is not directed to a plant variety or varieties within the meaning of Article 53(b) EPC. That is why it is . . . in agreement with the rules of logic that a patent shall not be granted for a single plant variety but can be granted if varieties may fall within the scope of its claims.**

The position advocated here by Petitioners would have the perverse result of rendering the scope of patentable subject matter in the United States, whose legislation does not forbid "dual protection" of plant varieties, much narrower than in Europe, where the applicable legislation does include such a ban. Economists have found that weakness in a country's intellectual property laws leads companies to invest in other countries, where intellectual property protection is stronger, and to limit or withhold the introduction of new technologies in nations where less protection is available. *See* Edwin Mansfield, *Intellectual Property Protection, Foreign Direct Investment and Technology Transfer*, IFC Discussion Paper No. 19 (1994), available at <http://www.ifc.org/economics/pubs/dp19/dp19.doc>. Thus, a predictable consequence of holding that utility patents cannot be granted as to plant subject matter would be the flight of businesses engaged in biotechnology research to jurisdictions where their inventions could be legally protected.

Placing United States inventors and consumers at such a competitive disadvantage vis-à-vis those in

Europe would contravene Congressional policy, which has consistently sought to ensure a "level playing field" with international competitors, and to ensure that the United States enjoys "the greatest relative competitive advantage in the global marketplace." *See, e.g.*, 145 Cong. Rec. H6929-02, 1999 WL 564424 (Aug. 3, 1999) ("The U.S. should promote industries and sectors of our economy that provide the U.S. with the greatest relative competitive advantage in the global marketplace. The U.S. is a leader in research, innovation, and the development of intellectual property, but this advantage could be jeopardized if U.S. patent law is not reformed to create a level playing field with our competitors. U.S. patent law should be reformed to ensure that our businesses and researchers are well positioned to compete in the global economy today and into the future"). To refuse utility patent protection to inventions relating to plants would represent a failure of the United States intellectual property system. And, as demonstrated below, it also would be entirely contrary to the plain language of the utility patent statute.

Because the United States' utility patent scheme contains no counterpart to Art. 53(b) of the EPC, this Court may eschew the European "semantic approach and its fruitless debate over the precise meaning and scope of the terms 'plant variety' and 'plant'." *See* Geertrui Van Overwalle, *Patent Protection for Plants: A Comparison of American and European Approaches*, 39 IDEA: J.L. & TECH. 143, 172, 192 (1999) (concluding "that patent law should provide patent protection for all plant inventions, regardless of whether they are obtained by conventional breeding methods or by modern transformation techniques"). As

the Federal Circuit noted, "the PVPA does not purport to remove plants from the patent statute. Neither Congress nor the Courts excluded new plant varieties from the patent statute; the enactment of the PVPA did not affect such an exclusion." *J.E.M. Ag Supply, Inc.*, 200 F.3d at 1378.

The United States Patent and Trademark Office ("USPTO") has issued utility patents covering plant subject matter since the Board of Patent Appeals and Interferences decided, in *Ex parte Hibberd*, 227 U.S.P.Q. 443 (Bd. Pat. App. & Interf. 1985), that plants are not excluded from patentable subject matter under 35 U.S.C. § 101. In the sixteen years since *Hibberd*, Congress has had multiple opportunities to "correct" this interpretation in the event Congress disagreed with it. That it has not done so is instructive for this Court in interpreting the general patent statute. *Cf. Johnson v. Transportation Agency*, 480 U.S. 616, 629 n. 7 (1987) ("Congress has not amended the statute to reject our construction, nor have any such amendments even been proposed, and we therefore may assume that our interpretation was correct"); *Nat. Labor Relations Bd. v. Bell Aerospace Co.*, 416 U.S. 267, 274-75 (1974) ("In addition to the importance of legislative history, a court may accord great weight to the longstanding interpretation placed on a statute by an agency charged with its administration. This is especially so where Congress has re-enacted the statute without pertinent change. In these circumstances, congressional failure to revise or repeal the agency's interpretation is persuasive evidence that the interpretation is the one intended by Congress"). Here, not only has Congress refrained from amending the statute to remove plants from coverage under 35 U.S.C.

§ 101, Congress has amended the statutory patent scheme to accommodate the USPTO's interpretation.

Subject to certain conditions, 35 U.S.C. § 119 affords to an inventor who has filed a patent application in a foreign country the right to file an application for a United States utility patent, and to have the United States application treated as if it had been filed when the foreign application was filed. In 1999, Congress rewrote § 119, *see* Pub. L. No. 106-113, 113 Stat. 1536, to comply with the requirements of the Trade Related Aspects of Intellectual Property Rights ("TRIPs") Agreement, which was part of the Uruguay Round Agreements of the General Agreement on Tariffs and Trade. *See* TRIPs Agreement, 33 I.L.M. 1197 (1994). The 1999 revision permits applicants who previously filed a patent application in a World Trade Organization ("WTO") country to claim priority in a subsequent patent application filed in the United States. Of greatest importance to this case is the new § 119(f), which provides that,

> Applications for plant breeder's rights filed in a WTO member country (or in a foreign UPOV Contracting Party) shall have the same effect for the purpose of the right of priority under subsections (a) through (c) of this section as applications of patents subject to the same conditions and requirements of this section as apply to applications for patents.

35 U.S.C. § 119(f).

In § 119(f), Congress plainly acknowledged the USPTO's practice of issuing utility patents on inventions relating to or embodied in plants. Congress also recognized that plant varieties subject to protection under the

UPOV Convention may also meet the conditions for issuance of a utility patent. Rather than amend 35 U.S.C. § 101 to remove sexually reproducing plants from patentable subject matter, Congress took the opposite approach; it amended the priority provisions of § 119 to ensure that plant variety protection applications in foreign countries would have the same priority treatment as foreign patent applications.[11]

By enacting subsequent legislation to accommodate the USPTO's conclusion that plants constitute patentable subject matter under 35 U.S.C. § 101, Congress "has effectively ratified the [USPTO's] position," *see FDA v. Brown & Williamson Tobacco Corp.* 529 U.S. 120, 156 (2000), since "it is hardly conceivable that Congress . . . was not abundantly aware of what was going on." *Id.* (quoting *Bob Jones Univ. v. United States*, 461 U.S. 574, 600-01 (1983)). Thus, to deny utility patent protection to plant subject matter would impose restrictions found nowhere in the text of the patent laws, and would thwart the clearly expressed will of Congress. Accordingly, this Court should affirm the Federal Circuit's decision and hold that inventions relating to or embodied in plants are

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[11] The legislative history makes it clear that "[s]ubsection (f) to section 119 of the Patent Act . . . provide[s] for the right of priority in the United States on the basis of an application for a plant breeder's right first filed in a WTO member country or in a UPOV Contracting Party. . . . Because section 119 presently addresses only patents and inventors' certificates, applicants from these countries are technically unable to base a priority claim on a foreign application for a plant breeder's right when seeking plant patent or utility patent protection for a plant variety in this country." 145 Cong. Rec. S14696-03 (Nov. 17, 1999).

eligible for utility patent protection if they otherwise meet the requirements for patentability.

II. THE ECONOMIC IMPACTS OF PLANT PRODUCTS CONTAINING PATENTED MATERIALS HAVE BEEN FAVORABLE FOR FARMERS

Amici curiae American Corn Growers Association ("ACGA") and National Farmers Union ("NFU") assert in their brief in support of Petitioners ("ACGA Br.") that utility patent protection for plant subject matter has harmed farmers and consumers by (1) depriving farmers of the "traditional right to save seed," (2) raising the prices of seed, and (3) resulting in companies' "prosecuting patent infringement and other intellectual property violations" by farmers. ACGA Br. at 25-29. None of these contentions, however, supports the suggestion that Congress intended plant subject matter to be ineligible for utility patent protection, and none of them provides a policy basis for refusing such protection to inventions embodied in plants.

The utility patent system does not afford a right, without the patent holder's authorization, to save and plant progeny seed containing patented material. However, farmers are not prohibited from saving seed protected only under the PVPA for the purpose of replanting their own fields. 7 U.S.C. § 2543.[12] A farmer to whom the

[12] Prior to its amendment in 1994, the PVPA did not prevent farmers from selling to others seed which they had saved for the purpose of planting their own crop. *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 192 (1995). Consistent with the 1991 UPOV Convention, however, the PVPA was amended to delete the exemption permitting farmer sales of seed as to plant variety protection certificates issued after April 4, 1995, that were not pending on or before that date. *See* Pub. L. No. 103-349, §§ 14(a), 15, 108 Stat. 3144, 3145 (1994).

ability to save seed for replanting is more cost-beneficial than the improved characteristics of a seed product covered by a patent has the option of planting seeds not subject to patents. "An inventor deprives the public of nothing which it enjoyed before his discovery," *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 186 (1933), and patents on new inventions do not eliminate the availability of public domain varieties or PVPA-protected-only varieties.

If the superior qualities of seed products containing patented materials compared with non-patented products are not worth the increased cost of the new invention, the patented products will fail in the market. This is because "a patented innovation that finds little or no market demand is not consumed and thus generates no revenues for its owner." Erik A. Maurer, *An Economic Justification for a Broad Interpretation of Patentable Subject Matter*, 95 Nw. U. L. Rev. 1057, 1089 (2001). For these reasons, "undemanded patents and their owners suffer the market consequences of natural selection, while society still gains from their teachings and the wealth generation inherent in accumulating knowledge." *Id.* at 1091. Therefore, seed products covered by utility patents do not pose a threat of economic harm to farmers.

Moreover, far from determining that patented products cause economic harm to farmers, agricultural economists have concluded that when cotton containing patented insect-resistant *"Bt"* genes[13] was introduced in the United States in 1996, farmers received the 59% of the total economic benefits generated – by far the largest benefit distributed among economic participants, including the developers of the expressed gene and the cotton germplasm. *See* José Benjamin Falck-Zepeda, Greg Traxler & Robert G. Nelson, *Surplus Distribution from the Introduction of a Biotechnology Innovation*, 82 Am. J. Agric. Econ. 360, 367 (2000). In 1997, the same researchers concluded, farmers received 42% of the economic surplus from *Bt* cotton, and farmers' share of total economic benefits from the introduction of patented, herbicide-tolerant soybeans was 76%. *See* José B. Falck-Zepeda, Greg Traxler & Robert

[13] In the parlance of agricultural biotechnology, *"Bt"* plants are plants which have been genetically engineered to express traits from *Bacillus thuringiensis*, a common soil bacterium, which is toxic to certain insects of the Order Lepidoptera, such as the European corn borer, bollworms, tobacco budworms, and pink budworms. "Genes conferring resistance to insects have been inserted into crop plants such as maize, cotton, potato, tobacco, . . . rice, broccoli, lettuce, walnuts, apples, alfalfa and soybean." Hari C. Sharma, Kiran K. Sharma, Nadoor Seetharama & Rodomiro Ortiz, *Prospects for Using Transgenic Resistance to Insects in Crop Management*, 3 Molecular Biology & Genetics No. 2 (2000) (available on the internet at <http://ejb.org/content/vol3/issue2/full/3/index.html>). An informative discussion of the *Bacillus thuringiensis* gene and the genetic engineering techniques by which it has been introduced in plants can be found in *Mycogen Plant Science v. Monsanto Co.*, 243 F.3d 1316, 1322-24 (Fed. Cir. 2001).

G. Nelson, *Rent Creation and Distribution from Biotechnology Innovations: The Case of Bt Cotton and Herbicide-Tolerant Soybeans in 1997*, 16 Agribusiness 21, 30-31 (2000). A further analysis of the first three years showed consistent results: "Farmers share the rents created by the technology almost equally with innovators, even when a monopolistic structure for the input market is assumed." *See* José B. Falck-Zepeda, Greg Traxler & Robert G. Nelson, *Rent Creation and Distribution from the First Three Years of Planting Bt Cotton* (ISAAA Briefs No. 14 1999), available at <http://www.isaaa.org/publications/briefs/Brief___14.htm>. Thus, although seed costs may have risen, the overall economic benefits to farmers from introduction of these patented seed products far exceed the increased seed costs.

ACGA/NFU also contend that farmers should not be subject to liability when they breach their license agreements and infringe utility patents by "saving seed or selling or trading seed to fellow farmers." ACGA Br. at 28. However, quite apart from utility patent law, farmers are prohibited to sell, without authorization by the variety owner, seed of varieties protected under the 1994 amendments to the PVPA. *See* 7 U.S.C § 2541(a)(1) (prohibiting unauthorized sales of protected variety).

Likewise, contractual restrictions on the use of technical materials, such as bag label contracts and materials transfer agreements (MTAs), may be enforceable even absent a statutorily created intellectual property right.[14]

[14] *See, e.g.*, Eran Brinenbaum, Carol Nottenburg, Philip G. Pardey, Brian D. Wright & Patricia Zambrano, South-North

The existence of litigation between seed companies and farming entities is due, in many cases, to the fact that some farmers have deliberately infringed seed companies' rights, sometimes on a very large, commercial scale. *See, e.g., Delta and Pine Land Company v. Sinkers Corp.*, 177 F.3d 1343, 1352 & n. 7 (Fed. Cir. 1999) (farming partnership, without authorization, sold enough PVPA-protected cottonseed "to plant close to 25,000 acres or forty square miles of cotton"). ACGA/NFU's contention is less an argument against utility patents than it is an argument against all intellectual property laws or even consensual restrictions of any kind. It is not a reason to invalidate utility patents in preference to plant variety rights or other forms of protection.

Farmers in the United States are reaping the benefits of the increased investments in agricultural biotechnology, which have been encouraged and made economically feasible because of the availability of utility patent protection. To destroy this incentive to invest in research, by invalidating plant utility patents, would deal a senseless, destructive blow to the economic interests of farmers and consumers of farm products. Accordingly, this Court should affirm the Federal Circuit's decision.

TRADE, INTELLECTUAL PROPERTY JURISDICTIONS, AND FREEDOM TO OPERATE IN AGRICULTURAL RESEARCH ON STAPLE CROPS at 11 (International Food Policy Research Institute December 2000) ("*bag label contracts* between the manufacturer and the buyer of, for example, seed, . . . limit further uses of purchased material than would otherwise be allowable"); Daniel M. Putterman, *Model Material Transfer Agreements for Equitable Biodiversity Prospecting*, 7 COLO. J. INT'L ENVTL. L. & POL'Y 149, 150-51 (1996) (discussing use of MTAs).

III. UTILITY PATENTS FOR INVENTIONS RELATING TO OR EMBODIED IN PLANTS DO NOT ADVERSELY AFFECT GENETIC DIVERSITY IN THE UNITED STATES

AGCS/NFU also contend that utility patents in living things should be viewed with suspicion because they erode the genetic diversity of agricultural crops. AGCS Br. at 14-16.[15] But while the worldwide preservation of genetic diversity in the plant kingdom is undoubtedly an important international policy objective,[16] the suggestion

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[15] In a related argument, AGCA/NFU invoke the "tragedy of anticommons" – the theory that patents may actually deter innovation by raising barriers to research. AGCA Br. at 16. Like nearly all economic theories, the "patents deter innovation" theory is disputed. *See, e.g.*, F. Scott Kieff, *Facilitating Scientific Research: Intellectual Property Rights and the Norms of Science – A Response to Rai and Eisenberg*, 95 NW. U. L. REV. 691 (2001). Moreover, even some believers in the "anticommons" have concluded that "it is less of a risk than that insufficient patent protection will be granted where it is most needed." *See* Kenneth W. Dam, *Intellectual Property and the Academic Enterprise* (John M. Olin Law & Economics Working Paper No. 68 Dec. 1998), available at <http://www.law.uchicago.edu/Publications/Working/Index.html>. In any event, abandoning the Constitutional assumption, embodied in U.S. Const. Art. I, § 8, that granting inventors exclusive rights for limited times *encourages* innovation, would be an extraordinary change in public policy that must be left to the democratic and political processes of American government.

[16] Genetic diversity is a specific aim of the Convention on Biological Diversity, June 5, 1992, 31 I.L.M. 818 (1992), and the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, May 15, 2000, 39 I.L.M. 1027 (2000) (which the United States has not signed) and the Food and Agriculture Organization's International Undertaking on Plant Genetic

that utility patents issued by the USPTO cause such erosion is unsupported.[17]

A recent OECD study notes that, "market and agronomic forces," rather than intellectual property rights, may be "the major factors leading to genetic erosion and the loss of genetic diversity," Carliene Brenner, *OECD Development Centre Technical Paper No. 133 – Intellectual Property Rights and Technology Transfer in Developing Country Agriculture: Rhetoric and Reality* at 47 (Mar. 1998), available at <http://www.oecd.org/dev/PUBLICATION/tp/Tp133.pdf>, and that "increased competition" resulting from the availability of intellectual property rights may "lead to more marked product differentiation among firms which, in turn, may enhance genetic diversity." *Id.* Some supporters of the theory agree that it is

Resources (a nonbinding agreement to which the United States is a signatory).

[17] The charge that intellectual property rights may contribute to the narrowing of the genetic base of agricultural crops is most often made with reference to conditions in developing countries, rather than in developed nations such as the United States. This is because, in most developed nations, due to land clearing, decades of commercial-scale farming, and the concentration of farmers' efforts on "cash crops," "genetic erosion" occurred long ago. *See, e.g.*, Jim Chen, *Diversity and Deadlock: Transcending Conventional Wisdom on the Relationship Between Biological Diversity and Intellectual Property*, 31 ENV'TL L. REP. 10625 (June 2001) (considering "in turn the arguments advanced by the genome-rich but underdeveloped South and by the genome-poor, technologically wealthy North").

largely inapplicable to already-industrialized countries such as the United States.[18]

As a global issue, the diminution of available genetic resources is cause for concern. It is not, however, a problem that can or should be remedied by invalidating plant utility patents.

CONCLUSION

The continued availability of utility patents for innovations in plant technology that are original, novel, useful, and nonobvious is critical to the future success of agriculture and the general economy of the United States. For all the reasons discussed above, Delta and Pine Land Company urges this Court to affirm the decision of the Federal Circuit and to hold that sexually reproduced plants are eligible for utility patents under the current

[18] "This problem in the North[ern countries] is a source of aggravation and inefficiency, but is in no way a serious threat to the well being of consumers because most of their major staples are receiving considerable attention from the private sector." *See* Eran Binenbaum, Carol Nottenburg, Philip G. Pardey, Brian D. Wright, and Patricia Zambrano, SOUTH-NORTH TRADE, INTELLECTUAL PROPERTY JURISDICTIONS, AND FREEDOM TO OPERATE IN AGRICULTURAL RESEARCH ON STAPLE CROPS at 4 (International Food Policy Research Institute Dec. 2000), available at <http://www.ifpri.cgiar.org/checknames.cfm/eptdp70.pdf?name=eptdp70.pdf&direc=d:webs\ifpri\divs\eptd\dp\papers>.

statutory scheme, so long as they meet the statutory requirements for patentability.

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